

REMARKS

Applicant has amended the claims to further define its invention and overcome the Examiner's objections.

The Examiner has rejected claims 1-4, 6-13, 15, 16, 19 and 20 in view of Kanoa (915). Applicant respectfully traverses the rejection of these claims in view of the Kanoa (915) patent. The Kanoa patent describes the hose as being "formed by winding a **pair** of coated wires spirally at a double pitch...." The pairs of wires in Kanoa are noted as 10a and 10b in Figures 1,2,3,6,7,8,9,10,11 and as 6a and 6b in Figures 12, 13, 14. Applicant's claims 1-4,6-13,15,16,19 and 20 in the present invention are patentable over Kanoa because, as amended, they have a single helical member at a constant pitch along the length of the hose and not a varied pitch as required by Kanoa.

Claim 1 has also been amended to claim a hose having a thermoplastic cover in the form of a single wall. The claimed invention has a single helical member capable of retaining its shape in the hose and adhered to the interior the interior surface of the thermoplastic cover, the helical member of the claimed invention is comprised of a material capable of carrying a current of electricity.

Claim 2 further defines Applicant's invention when in the retracted condition the valleys are virtually eliminated and the sidewalls on opposite sides of the valley are generally in contact with each other. This is different from Kanoa, which has a double pitch, meaning the pitch varies along the length of the hose when in the retracted position as illustrated in Figure 5 and described in the specification:

"steeply slanted spiral in a predetermined length portion at the one of or both of the ends of the hose body adjacent to the connection cylinders so that adjacent spiral portions of the reinforcement wire material **are close to each other while a hose wall is loosened t ward the inner circumferential surface of the hose**, and wherein the reinforcement wire material is shaped like a gently slanted spiral in an intermediate portion except the predetermined length portion so that adjacent spiral portions of the

reinforcement wire material are separated from each other in the direction of a hose axis" column 2 line 16-26.

Claim 3 is also different than Kanoa as it claims the valleys to be U-shaped when in the rest position, the distance between the sidewalls in Kanoa vary along the length of the hose. Because Applicant's invention does not include the essential feature of the double pitch and the varied length of Kanoa, Applicant's invention is patentable and not anticipated or suggested by Kanoa.

Claim 4 is directed to the hose of the present invention when in the extended form, the valleys along the length of the hose become wider but the angle of the sidewall stays generally the same. In Kanoa there are extension contraction zones along the hose as described in the specification col 2 line 54-62 stating:

"the steeply slanted portion (extension/contraction zone) of the reinforcement wire material formed near the operating pipe and the steeply slanted portion (extension/contraction zone) of the reinforcement wire material formed near the cleaner body can be bent freely in all directions with less resistance during the usage of the cleaner, and the angles with respect to the portion can be changed flexibly. Further these extension contraction zones can be extended in the direction of the hose axis by pulling the hose."

In Kanoa along the length of the hose the distance between sidewall varies, the contraction zones (a and b) have no valleys and the extension zones have valleys 6, as illustrated in Figure 4 and Figure 5.

Applicant's claims 6-20 and 22 in the present invention further distinguish the claimed invention from Kanoa. Applicant has amended claim 6 to include the limitation that single walled in the area of the helical member. Claim 15 is amended to include the limitation of the hose having a thermoplastic cover in the form of a single wall. Applicant has also amended claims 6 and 15 to limit the present invention to a hose that is adapted to carry a current in its helical member and the helical member has a constant pitch along the length of the hose. Applicant's structural wire has a single pitch not a double pitch as taught by Kanoa. Because the double pitch feature of Kanoa is essential to the invention, Applicant's single pitch invention is

not anticipated or suggested by Kanoa.

The Examiner has rejected claims 1-4, 6-9 and 15 as being anticipated by Ragner. These claims have been amended to overcome Ragner. Claim 6 further defining the structure of the claimed invention to be a single walled structure around the helix. Claim 15 claims a thermoplastic cover in the form of a single wall. Unlike the present invention Ragner is for a specific extensible hose and does not include the type of electrical or current carrying designs or capabilities as described in Applicant's claimed invention.

The Examiner equates Ragner's biasing spring 36 to the Applicant's helical member. Ragner teaches a

"Hose 30 is specifically designed to a pressure hose. The construction can be similar to existing hoses except that the biasing spring 36 specifically biased for the environment the hose will be used. A biasing means can be incorporated to bias the hose toward extension or toward retraction. The biasing means can be integrated with the body of the hose or can be internal or external to the body of the hose. Biasing spring 36 can be a simple helical spring that extends along the full length of the hose, but may be comprised of multiple spring coils and/or multiple diameter spring coils."

Unlike Ragner, the helix 22 of the present invention is not comprised of spring coils, but is intended to carry a current along the length of the hose. Therefore, the helix is made of a suitable conductive material. The helix in the present invention serves the purpose of structuring the hose, conducting electricity and also may be insulated with a thermoplastic cover and used as a conductor. In addition, Ragner is a doubled wall structure in which the helix spring 36 is covered with the hose cover material 32 on the outside and hose cover material 34 on the inside, unlike the Applicant's claimed invention of which is a single walled structure as claimed.

The Examiner has rejected claims 1-4, 6, 8 and 12 as being anticipated by Pavlic. The Pavlic patent states in column 3, lines 64 thru 72, that the electrical capability is defined as

"a pair of narrow small gauge electrical conductors 27 and 28 of copper, aluminum or other good electrically **conductive material are embedded with the wall of the tube 21 at one side and follow the longitudinal contour of the tube 21** including the loop portions 24 so that as the hose is extended and the loop portions 24 straighten out and unwrap from about

the turns of the coil 20 the conductors 27 and 28 also straighten out and unwrap in the same manner so that the extensibility of the hose is unimpaired.”

In Pavlic the conductive material is embedded within the wall of the tube and follows the longitudinal contour of the tube and does not have helical structure. Therefore, Pavlic does not have a helical conductive member and is not equivalent to the claimed invention. To remove the longitudinal feature of Pavlic produces a different result than what is suggested by Pavlic. In the claimed invention the conductors are wrapped helically around the hose and not longitudinally as in Pavlic.

Furthermore, Pavlic as noted above has loop portions 24. These loop portions 24 are comprised of slack material inwardly folded that are adapted to unwrap from about the turns of coil 20, the conductors 27 and 28 also straighten out and unwrap in the same manner so that the extensibility of the hose is unimpaired and the conductors follow the longitudinal contour of the tube 21.

In addition, in the claimed invention there is a structural helix , and on opposite sides of the helix 32 are two conductor wires 34 and 35 that are laid on either side of the helix 32, not longitudinally as in Pavlic. These wires are preferably stranded copper wire of a gauge in the range of 10 to about 20 with a thermoplastic jacket as the insulation. Thus, the present invention is not anticipated or suggested by Pavlic in the construction, location, and design of the conductors and the presence of the helical structure.

The Examiner has rejected claims 1-4 as being anticipated by Duff. The hoses in Duff are for a specific extensible hose and do not include any type of electrical or current carrying designs or capabilities as described in the Applicant's claimed invention. The Examiner states in Duff the “ helical member can carry electricity being formed of steel wires” citing col. 3, lines 28-35. However, col. 3 lines 28-35 state :

“ In making the hose of the present invention, the reinforcing element 12 is precoiled so that its turns 16 tend to move into contact with each other. Since the wire 14 is of small diameter and the steel is comparatively heavy, the weight of the turns

will cause them to be spaced apart widely at the top and closer together at the bottom. Than principle is used in making the hose of the present invention.”

Duff does not suggest the carrying of electric current in the specification. Duff contemplates using the coiled wire for reinforcement purposes. Furthermore, Duff, unlike the present invention, the Duff hose’s flexibility and stretchability continuously varies from one end thereof to the other as stated in column 1 lines 50 -52 :

“ the hose of the present invention differs over the above described hose in that its flexibility and stretchability continuously varies from one end thereof to the other. At one end, the folds of the tube wall are comparatively shallow, while at the other end they are comparatively deeper. The depths of the folds become progressively deeper from the shallow end to the deeper end.”

Therefore, the hose of the present invention is not anticipated or suggested by Duff because Applicant’s hose has a constant pitch along the length of the hose.

The Examiner has rejected claims 1-4, 6-9, 12, 13, 15-17 and 19 as being anticipated by Fujimoto. Fujimoto as described in column 2, line 48 thru 51, is

“composed of a hose wall 1 comprising an inner wall 2 and an outer wall 3, and a spiral reinforcement 4 interposed between the inner wall 2 and the outer wall 3.”

Claim 1 claims a single helical member and has been amended to claim a single wall construction. Unlike Applicant’s single helical member, Fujimoto also has a two wire structure composed of a conductive wire 6 adjoining parallel to the reinforcing wire 5. Claims 2,3,and 4 are dependant on claim 1 and incorporate the limitations from claim 1 and are not anticipated or suggested by Fujimoto. Claim 6 claims a single wall construction around the helical member and claims 7, 8, 9, 12, 13 as dependant claims incorporate the same limitation of a single wall construction and are not anticipated nor suggested by Fujimoto. Further, claims 15 also claims a single wall structure and claims 16, 17 and 19 as dependant claims are not anticipated or suggested by Fujimoto. None of the constructions described in Applicant’s claimed invention

include an inner and an outer wall with the wire encapsulated between the two. Applicant's claimed hoses are single wall constructions and are not anticipated or suggested by Fujimoto.

Claim Rejections - 35 USC § 103

The Examiner has rejected claims 7, 9, 10, 11, 13-16, 19 and 20 of the present invention as being unpatentable over Pavlic in view of Kanao. Claim 7 is dependant on Claim 6 which claims a helical member. Pavlic does not have a helical member, instead according to Pavlic the conductors follow the longitudinal contours of the tube as described in col 3 lines 64-72:

“a pair of narrow small gauge electrical conductors 27 and 28 of copper, aluminum or other good electrically conductive material are embedded with the wall of the tube 21 at one side and follow the longitudinal contour of the tube 21 including the loop portions 24 so that as the hose is extended and the loop portions 24 straighten out and unwrap from about the turns of the coil 20 the conductors 27 and 28 also straighten out and unwrap in the same manner so that the extensibility fo the hose is unimpaired.”

Unlike Pavlic, Applicant's hoses, as claimed, wrap circumferentially around the hose and not longitudinally.

Furthermore, in the Kanao (915) patent the hose is formed as described in section 3, lines 54 thru 56, “ by winding a pair of coated wires spirally at a double pitch .” These pairs of wires are noted as 10a and 10b in Figures 1,2,3,6,7,8,9,10,11 and as 6a and 6b in Figures 12, 13, 14.

Claims 7,9,10,11,13 and 14 are dependant on claim 6, which as amended claims a hose having a thermoplastic cover in the form of a single wall and a constant pitch along the length of the hose thus different then Kanao.

Applicant's claimed invention is unlike Kanao because it is has a limitation on the continuity of the pitch, claimed in claim 7, 9, 10, 11, 13, 14, 15, 16, 19 and 20. In the present invention the hose is adapted to carry a current in its helical member and the pitch is constant along the length of the hose.

Furthermore, to combine Pavlic and Kanao would destroy each invention for their

intended purpose because Pavlic's conductors follow the longitudinal contour of the hose unlike Kanoa's hose which is formed by winding a pair of coated wires spirally at a double pitch.

Therefore, Applicant's invention is not obvious and is not suggested by Pavlic in view of Kanoa because the combination of the two does not result in the present invention.

The Examiner has rejected claims 14, 17 and 18 as being unpatentable over Kanoa in view of Fujimoto. Claim 14 depends on claim 6 which suggests a constant pitch, Kanoa does not disclose the recited structure of the present invention, the Kanoa (915) patent as described in section 3, lines 54 thru 56, this hose is "formed by winding a pair of coated wires spirally at a double pitch...." These pairs of wires are noted as 10a and 10b in Figures 1,2,3,6,7,8,9,10,11 and as 6a and 6b in Figures 12, 13, 14. Applicant's claimed invention in 14,17 and 18 so that the pitch is constant along the length of the hose.

Fujimoto as described in column 2, line 48 thru 51, is

"composed of a hose wall 1 comprising an inner wall 2
and an outer wall 3, and a spiral reinforcement 4 interposed
between the inner wall 2 and the outer wall 3."

The constructions described in Applicant's claims 14,17 and 18 do not include an inner and an outer wall with the wire encapsulated between the two. Applicant's hoses are single wall constructions. The combination of Kanoa and Fujimoto would not result in the Applicant's invention. Therefore, because Kanoa does not disclose the same structure as the present invention, the claims 14, 17, and 18 are patentable over Kanoa in view of Fujimoto.

The Examiner has rejected claims 5, 10, 11, 14, 18 and 20 as being unpatentable over Fujimoto. Fujimoto as described in column 2, line 48 thru 51, this hose is "composed of a hose wall comprising an inner wall and an outer wall, and a spiral reinforcement interposed between the inner wall and the outer wall". Claims 5, 10, 11, 14, 18 and 20 claim a hose with a thermoplastic cover in the form of a single wall. Applicant's claimed invention does not include an inner and an outer wall with the wire encapsulated between the two. The Applicant's hoses in claims 5, 10, 11, 14, 18 and 20 are single wall constructions and therefore the present invention

is patentable and not obvious or suggested by the prior art. Therefore claims 5, 10, 11, 14, 18 and 20 are patentable over the prior art.

New Claims 21-25

Newly added claim 21 is directed to a flexible hose having a thermoplastic cover. The interior surface of the thermoplastic cover has a helical member adhered to it. In this area the thermoplastic cover is a single member i.e. the thermoplastic cover claimed is in the form of a single wall in this region. The helical member has a conductive wire on at least one side of the helical member and a thermoplastic cover extruded around the conductive member. Claim 21 is shown in Figures 3-6, and in paragraph 0024 lines 1-9. The thermoplastic cover is extruded around the wires and over the structural helix as shown in Figure 3 and 4. This feature is not contemplated in the prior art, in the prior art there is no separation between the "helix" and adjacent conductive wire by a thermoplastic covering. Claim 24 is dependant on claim 21 and claims a thermoplastic cover extruded over a second conductive wire, claim 24 also finds support in paragraph 0024 lines 1-9 and Figures 3 and 4.

Newly added claim 22 is directed to the feature of claim 1 as originally filed further directed to a hose where the pitch of the helical member is constant along the length of the hose. This feature is disclosed in the drawings in Figure 1 and Figure 2 illustrating a constant pitch of the helical member along the length of the hose.

Claim 23 is a dependant on claim 1 and further limits claim 1 by teaching that the hose has a pitch that is constant along the length of the hose. This feature is supported in the drawings in Figure 1 and 2.

Claim 25 is dependant on claim 22 and further claims the stretchability feature of the hose as extending at least 100% when ten pounds of pull are placed on an end of the hose. This claimed feature is supported in the specification in paragraph 0020 lines 21-25.

CONCLUSION

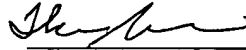
For the foregoing reasons, applicant's claims are patentable over the cited prior art and the application should be in condition for allowance.

Respectfully submitted,



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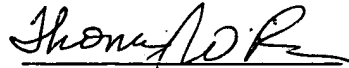
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CERTIFICATE OF MAILING

I hereby certify that the foregoing Response was mailed by first class mail, postage prepaid, in an envelope addressed to the Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450 on this 16th of April, 2004.



Thomas A. O'Rourke